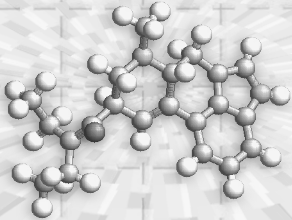
GB-303 V1



USER'S MANUAL

Furrtek Engineering

FTK-003M

Thank you for purchasing GB-303 !

First and foremost, GB-303 is only **inspired** by the Roland TB-303.
It is not intended to be a TB-303 clone for the GameBoy.
The user interface is different, the purpose is different, and even if care was taken to resemble the original, the sound is different.

:)

GB-303 is a monophonic wavetable-based synthesizer made to be used with other GameBoy music tools such as LSDJ or Nanoloop. The embedded memory provides enough space to save 100 patterns and 17 songs.

What makes GB-303 unique is not only its sound but also its analog controls, giving great ease of use during live play.

Along with the synth track is a parallel drum track, provided with 30 typical GameBoy drum presets for accompaniment or rhythm testing.

Some features of the original TB-303 were kept, but more were added for additional effects such as a LFO and per-note oscillator selection.

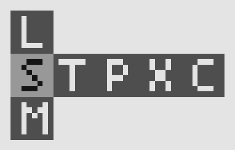
We hope that GB-303 will give you entire satisfaction and enable you to make even greater chipmusic !

CONTENTS

NAVIGATION

Similarly to LSDJ, SELECT+DIRECTIONS allows navigation between screens which are organized in 3 lines. From top to bottom are Live (L), 5 edition screens (STPXC), and Memory (M). GB-303 always boots up in the Tracker (T) screen.

Holding SELECT shows a map of the screens in the center of the display. The current screen is highlighted.



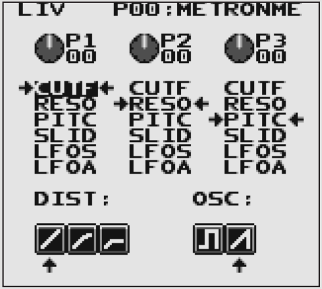
Note: The Memory (M) screen is not available during play. This is to avoid choppy sound while saving.

SCREEN LIVE [L]

Access: SELECT+UP from any edition screen.

START: Play pattern and loop. SELECT+START: Play song.
UP/DOWN/LEFT/RIGHT moves the highlighted cursor.
A validates, A+LEFT/RIGHT changes distortion or oscillator.

Pot mapping matrix: See page 5.
The value of each pot is shown in hexadecimal next to each pot icon.



When chosing an oscillator shape in the live screen, all oscillator values in patterns are overriden. Pressing A+LEFT 2 times disables oscillator override (hidden arrow).

Note: Distortion type is saved for each song and not for each pattern.

Pressing B wherever the cursor is, toggles the drum track (“B” icon next to “LIV”). Exiting the live screen re-enables the drum track.

POTS / KNOBS

Each of the 3 pots can be assigned to 6 different parameters.
Their values affect the sound from any screen.
Assignments are saved with every song, but can be overriden with the "Pattern overrides" option in the Config (C) screen.

CUTF: Cutoff, filter cutoff frequency: 96 steps
RESO: Resonance, filter resonance intensity: 16 steps
PITC: Main pitch shift: 128 steps
SLID: Slide speed, fixed on the TB-303: 128 steps
LFOS: LFO speed (frequency): 32 steps
LFOA: LFO amplitude: 16 steps

Note: In case a parameter is assigned to multiple pots, the rightmost one has the priority over the others.

Note: For GBA SP users, press START on startup to reverse the pots order.

SCREEN SONG

The Song screen is split in two screens: SNGA and SNGB making 5x16x2 = 160 pattern numbers per song.

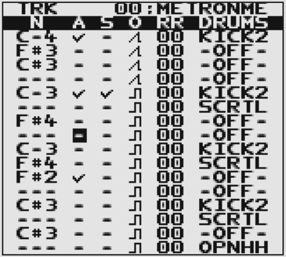


When going right after the rightmost column, screen is switched to SNGB, when going left before the leftmost column, screen is switched to SNGA.

START: Play pattern and loop. SELECT+START: Play song.
UP/DOWN/LEFT/RIGHT moves the highlighted cursor.
A+LEFT/RIGHT increments/decrements pattern number.
A+UP/DOWN increments/decrements by 10.
B+A sets the stop point (represented by ()).

Note: If there are no stop point in the song, the play pointer will loop to the song's start after the 160th position.

SCREEN TRACKER



The sequencer screens allows to program the sequence precisely. The common tracker layout is used: each line represents a step.

From left to right are the note and octave, accent and slide enables, oscillator type, arpeggio, and percussion name. The notes can range from C-2 to B-4 (3 full octaves).
START: Play pattern and loop. SELECT+START: Play song.
A+L/R: Semitone. A+U/D: Octave. B+A on note: clear.
B+A on empty: note off.
A+U/D on drums: -/+4. B+A on arp = 0. A+U/D/L/R on accent or slide: toggle.
A only on note: copy. A only on drum: copy. A on empty: paste.

Slide activates a pitch slide from the last pitch to the new note’s one.

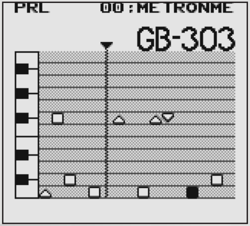
Note: The oscillator type can be overridden in the Live (L) screen and can be changed step by step even with no new note trigger.

SCREEN PIANO ROLL

START: Play pattern and loop. SELECT+START: Play song.
UP/DOWN/LEFT/RIGHT: Moves the highlighted cursor.
A sets note, B only removes note.
B+UP/B+DOWN : Moves 6 semitones.

Note icons: octave 2 / 3 / 4 / OFF



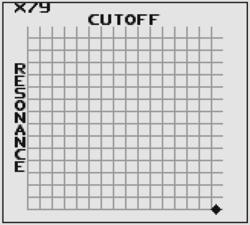


SCREEN X/Y PAD

START: Play pattern and loop. SELECT+START: Play song.

Visualisation by the black dot of cutoff value in X (left is highest) and resonance value in Y (top is highest).

Note: this screen allows for “rescue” control of these parameters with UP/DOWN/LEFT/RIGHT if there is a hardware problem with the pots.



SCREEN CONFIG



UP/DOWN: Moves the highlighted cursor.
A validates. A+L/R: Edit value.
START: Play pattern and loop. SELECT+START: Play song.

BPM: Tempo, 6 to 255 (saved in song).
Sync: None, LSDJ Slave, LSDJ MIDI-IN, Full MIDI IN, Nanoloop Master. See page 10 (saved in general parameters).
LFO to: Send to cutoff, resonance or pitch (saved in pattern).
Synth: L/R - **Drums: L/R** : Stereo routing for separate mixing if needed (saved in song).
Pattern overrides : When saving the pattern, the current pot assignments will be saved with it and will override the song's pot assignments (saved in pattern).

Note: Song or pattern settings are only saved after a song or pattern save in the Memory (M) screen.

Note: Sync mode can't be changed during play.

SYNCHRONIZING

No sync: Internal clock only, link port isn't used.

LSDJ Slave: Receives beat clock from LSDJ in master mode.

LSDJ MIDI-In: Receives MIDI messages from the special "MIDI OUT" version of LSDJ.

Nano Master: Sends Nanoloop master sync.

Full MIDI: Controls the synth with the Nanoloop USB-MIDI adapter on MIDI channel 1, notes 48 to 83.

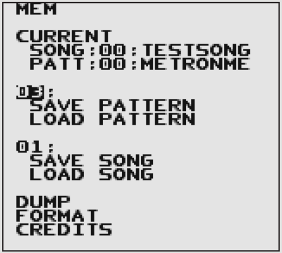
Note off triggered on note off message, or velocity = 0.

SCREEN MEMORY M

Access: Only while not playing, SELECT+DOWN from any edition screen.

UP/DOWN: Moves the highlighted cursor.
A: validates.

Current: Number and name of the currently loaded song and pattern.
Dump: Sends the whole memory contents through the link port for backup.



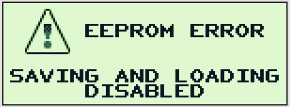
Note: In the Memory screen, it is impossible to start playing a song or a pattern. This is to avoid save corruption.
Note: Before a whole song is played, the current pattern is automatically saved.

WARNING: The format procedure, after confirmation, erases all the memory (songs and patterns) and resets it to factory settings.
WARNING: Do NOT turn off your GameBoy while saving.

TROUBLESHOOTING

Error reports are only shown when starting GB-303.
There are two kinds possible: EEPROM and HW (HardWare) errors.

EEPROM ERROR



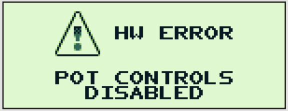
Something went wrong with the chip dedicated to saves.

If the error persists after reset and cleaning, there are three choices:
- -Continue using GB-303 with the save and load functionalities disabled.
- -Send the cartridge for repair to try and retrieve data (do NOT format !).
- -Say goodbye to all your saved data and try formatting to factory settings.

Warning: Once the saves are formatted, there is no way of getting back your data !

If the EEPROM ERROR persists after a format and a reset, please contact technical support (see page 15).

HW ERROR



Something went wrong with the chip handling the pots. This should only happen if the GB-303 cartridge is physically damaged. You can continue using GB-303 with pad controls only.
If the error persists after reset and cleaning, please contact technical support.

Broken pots

The parts most likely to break are the pots.
A broken pot will give erroneous control instead of a HW ERROR.
In this case, you can either send the GB-303 cartridge for servicing, or repair it yourself. The part number is **ALPS RK09K1130C79**.

Please be aware that if you chose to modify or replace components of the cartridge, any damages caused are of your sole responsability.

WARNING: Using a cheating device like the Action Replay™ can allow great hacks but can also lead to save corruption. If you are going to use such a device, don't be too attached to your patterns.

WARNING: If you are using an overclock mod on your GameBoy, please set it to the original GameBoy clock setting or lower before saving. This can also cause troubles during playback.

TECHNICAL SUPPORT

www.furrtek.org/gb303
furrtek@gmail.com

SW V1.0 WT V1.0

Software and wavetable versions as seen in the credits screen.

For any questions, please indicate your GB-303 version number (as seen on the bottom of the credits screen) and the GameBoy type on which the problem occurs.

CREDITS & THANKS

Code, gfx & hardware: Furrtek
Testing: 2080, 2xAA, DJPIE, Jankenpopp, Mr. Megahertz, Sabrepulse, Ultrasyd
Support: Cyberic, Jazzmarazz, KeFF, Nitro2k01, the Chipmusic.org forums, Kitsch-Bent